Emergency procedural sedation in children

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1 Emergency procedural sedation is safe

About 1% of children who visit an emergency department receive procedural sedation for painful procedures, including laceration repair, abscess incision and drainage, and orthopedic reductions.[1] Sedation in healthy children is associated with a 1% frequency of serious adverse events, including apnea, hypotension and bradycardia.[1,2]

2 Consider sedation with a single agent, such as ketamine, over drug combinations

In a prospective cohort of 6295 children, procedural sedations using ketamine alone were associated with fewer adverse events and required less positive pressure ventilation than any other drug combination, which resulted in more completed procedures without unplanned hospital admissions.[1] Laryngospasm occurred in 0.1%–0.3% of sedations.[1,2] The only absolute contraindications to ketamine use are age younger than 3 months and a known or suspected psychotic disorder.[3]

3 Premedication with ondansetron reduces postsedation nausea and vomiting

Postsedation vomiting occurs in 5% of children, and those who are older than 4 years old who are sedated using ketamine are at greatest risk.[1,2] One randomized controlled trial showed that a single dose of ondansetron reduced vomiting in children who had been given ketamine in the emergency department and after discharge from 18.9% to 7.8% (number needed to treat = 9).[4] Ondansetron is typically administered as a single dose 15–30 minutes before sedation by oral disintegrating tablet.

4 Premedication with opioids is associated with an increased risk of adverse outcomes

When opioids are administered in close proximity to sedation (≤ 30 min), the risk of oxygen desaturation and vomiting in children increases (odds ratio 1.9 and 1.4, respectively) compared with those receiving an opioid 3 hours before sedation.[1,2] Recognizing the synergistic effect of opioids and sedatives should alert clinicians to the importance of the premedication agent and sedation timing.

5 Fasting status is not an independent predictor for aspiration

Fasting guidelines are commonly not adhered to in the emergency department; however, we are unaware of a reported aspiration event associated with parenteral sedation in a child. In a prospective cohort study, half of the children did not adhere to fasting guidelines, and no association between fasting duration and adverse events was found.[5]

References

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